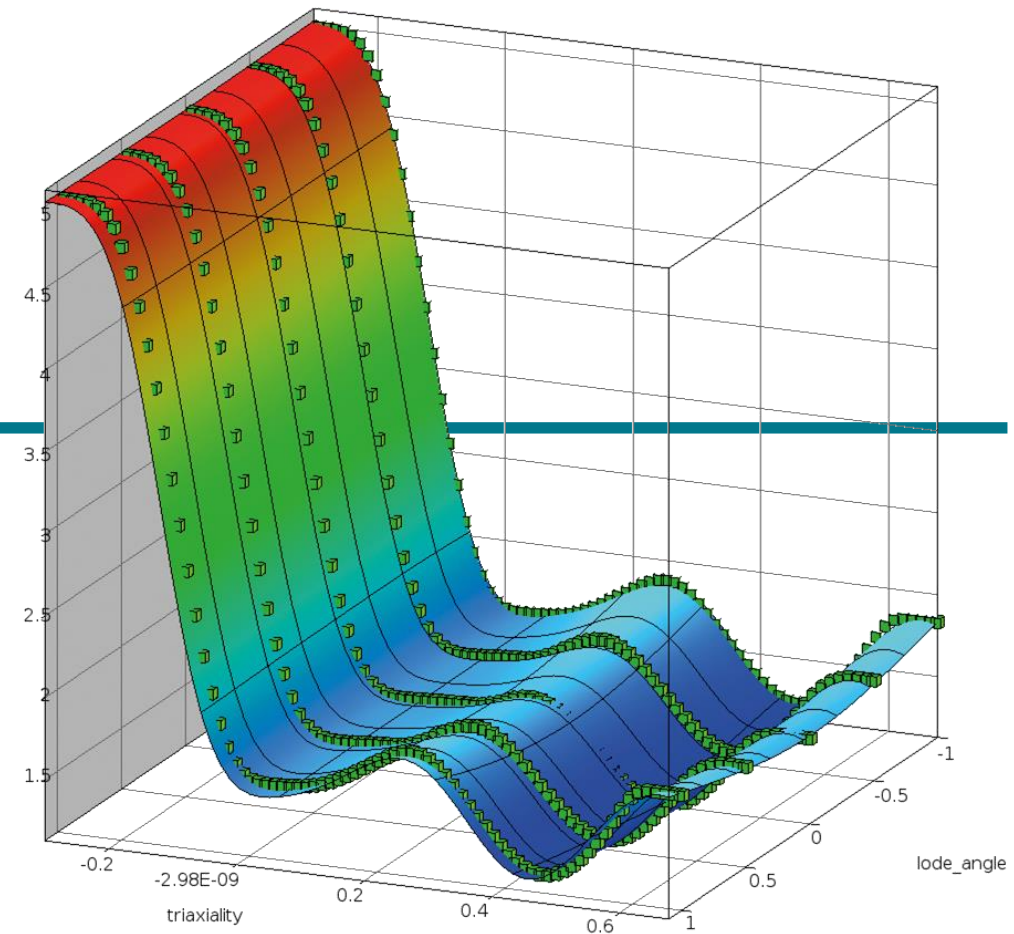


Optimization with ANSA, LS-OPT and META

Maik Schenke, DYNAmore GmbH



DYNAmore

Who we are

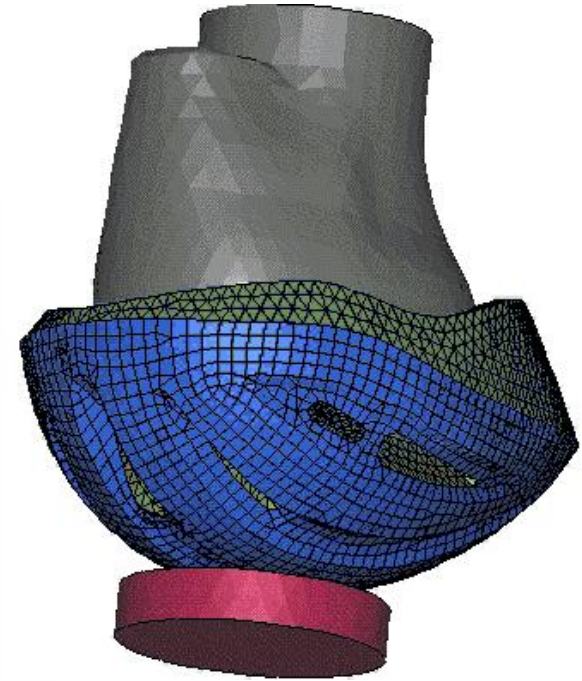
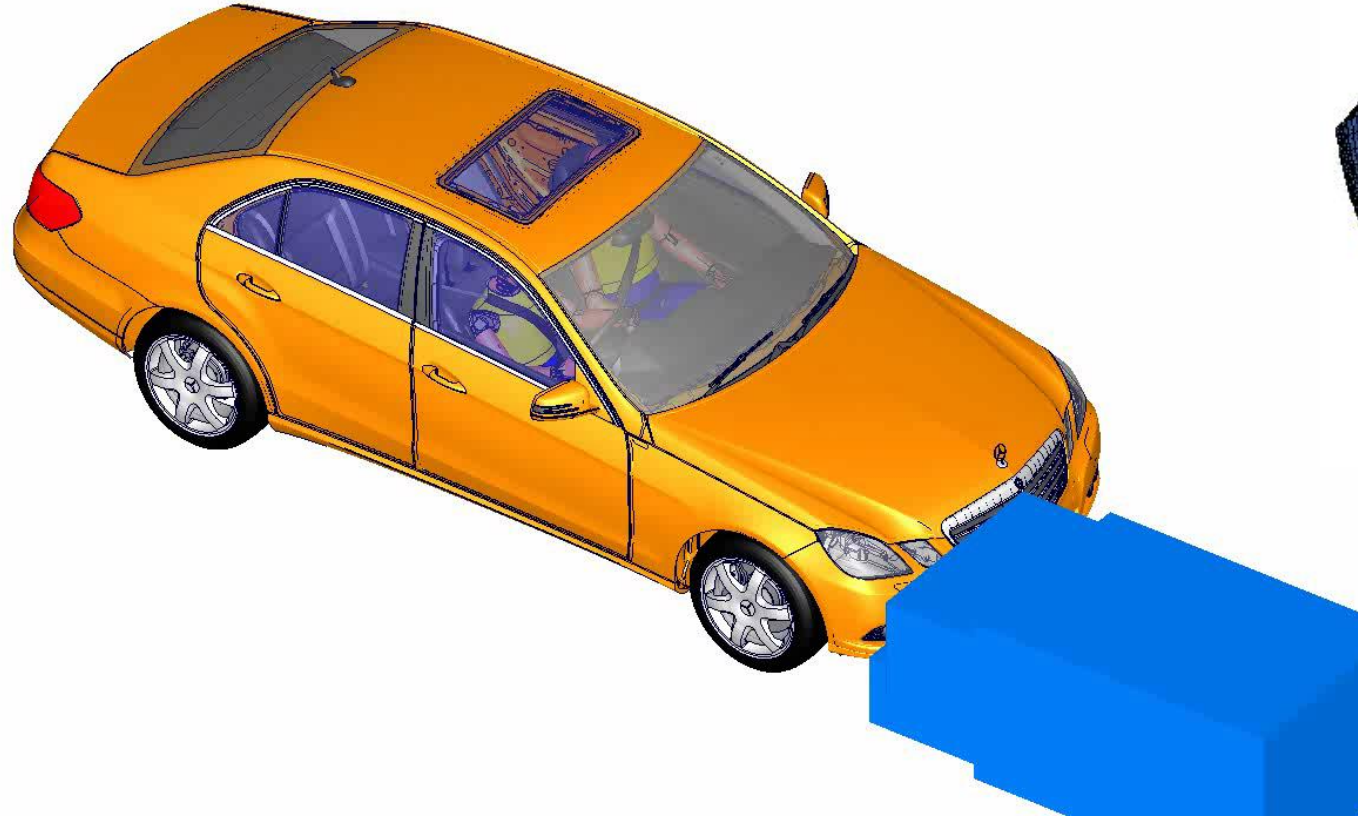
- Headquarter in **Stuttgart**
- Affiliated offices in
 - **Linköping**, Sweden
 - **Zurich**, Swiss
 - **Torino**, Italy
 - **Versailles**, France
 - **Dublin** (Ohio), USA
- Customer-dedicated Offices
 - Weissach (**Porsche**)
 - Ingolstadt (**Audi**)
 - Gothenburg (**Volvo**)
- Further Offices
 - **Ingolstadt**
 - **Dresden**
 - **Langlingen**
 - **Berlin**
 - **Leinfelden-Echterdingen**
 - **Munich**



- Who we are
 - More than **150 people**
 - From **different disciplines**, e. g. mechanical engineers, mathematicians, computer scientists etc.
 - From **13 different countries**

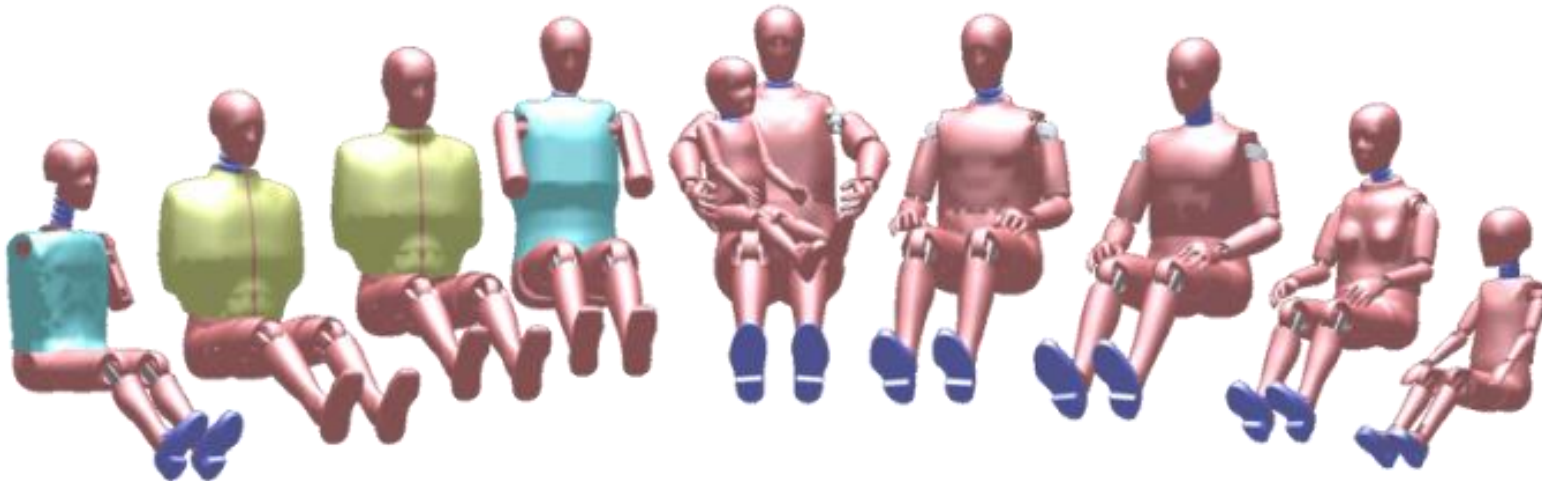


- LST Software, e. g.
 - **LS-DYNA** (European master distributor w/o UK and France)
 - **LS-OPT** and **LS-TaSC**
 - LS-PrePost
- Ansys Software, e. g.
 - **Ansys PrepPost**
 - **Ansys Mechanical**
- Others, e. g.
 - **DYNAmore Tools**
 - Eta/DYNAFORM
 - FEMZIP
 - Digimat
 - **ENVYO**



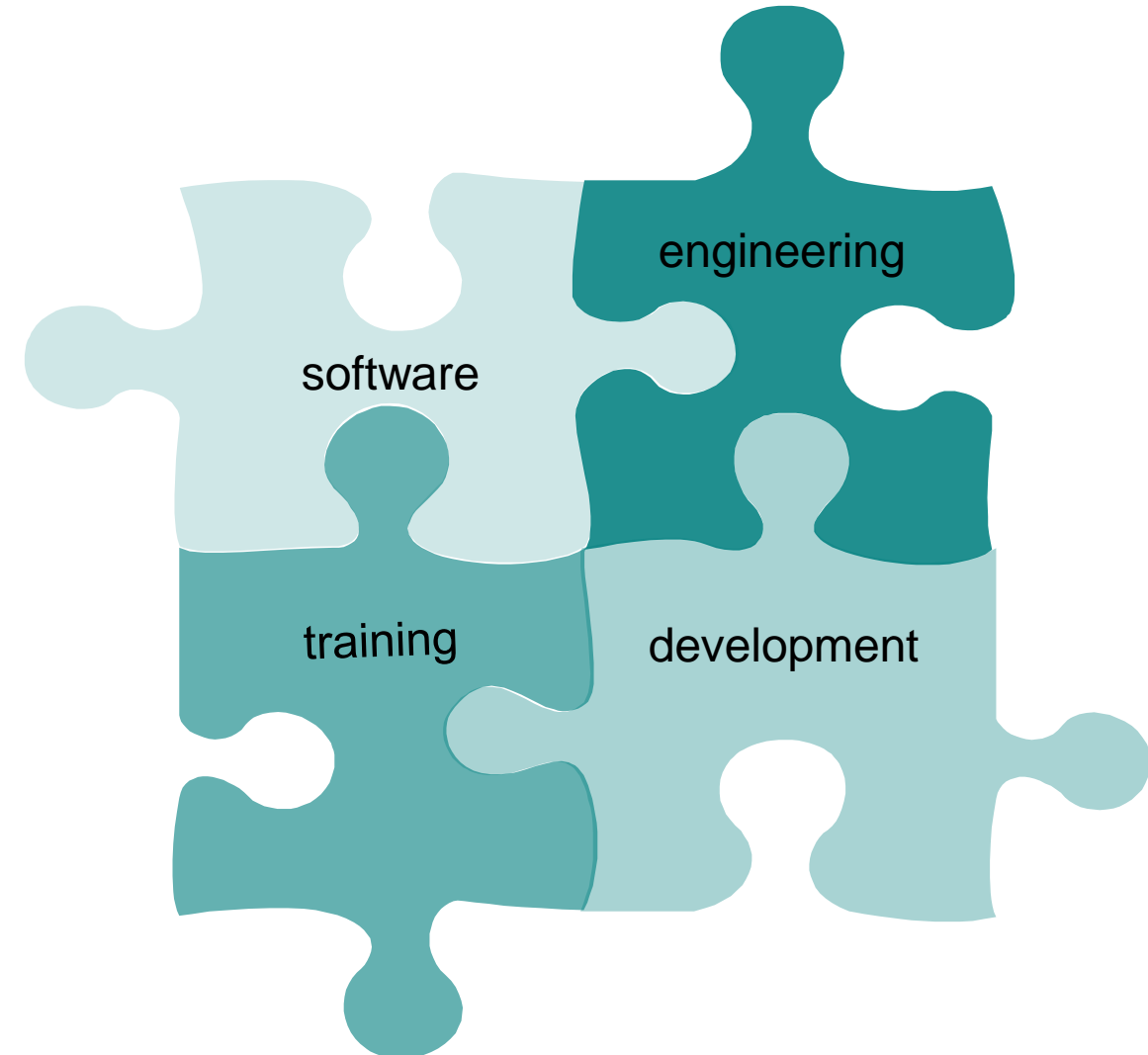
Courtesy of Daimler AG

- Models
 - **Dummies** (FAT/PDB/Humanetic)
 - **Human** (THUMS¹)
 - **Barrier and impactor models** of Arup, Daimler, Porsche and LST

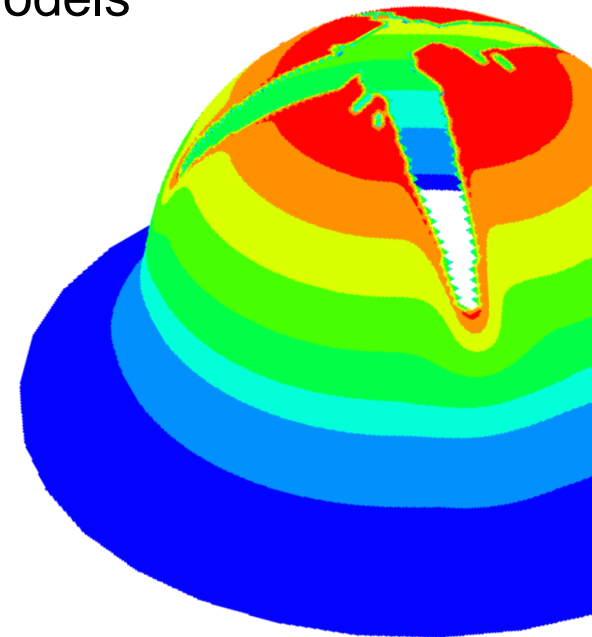


¹THUMS™, developed by Toyota Motor Corporation and Toyota Central R&D Labs

- Engineering
 - Benchmarking
 - Pilot projects
- Development
 - Development partner for LS-DYNA
 - Material and dummy models
 - System and process integration
 - Customization and method development
- Training
 - Seminar and on-site coaching
 - Conferences
 - Technical support



- Material-model development, e. g.
 - SAMP (Polymers)
 - GISSMO (Damage)
- Connection modeling
- Maintenance of material database
- Mapping of process simulation data, e. g, in
 - Forming
 - Composites
- Customer specific QA for new revisions of LS-DYNA
- Occupant and pedestrian safety
 - Development of dummy models and posing tools
 - Application of CPM method
 - Application of human models
- Others
 - Thermal forming
 - Optimization



Seminars on various topics

- Introductory courses
- Crashworthiness
- Process Simulation
- Materials
- Meshless Methods
- Optimization
- Multiphysics
- Forming
- Implicit
- ...

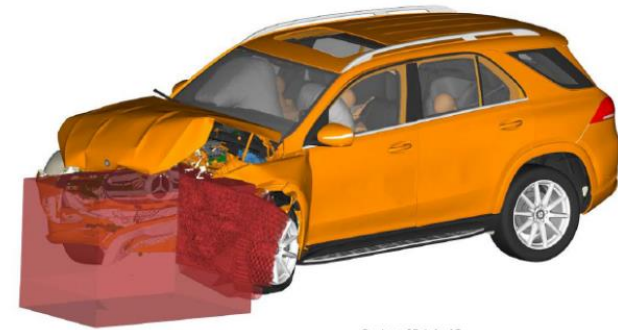
Booking and further trainings

- Booking on www.dynamore.de/en/seminars
- On-site trainings
- Individual trainings



2022

- Seminars
- Information days
- Webinars
- Support days



Courtesy of Daimler AG

LS-DYNA Compact Webinars

- Online-class version of attendance seminars, same topics but tailored to webinar format
- Duration: multiple two-hour per session
- Dates: regularly
- Fee: 200 Euro plus VAT per unit

On-demand Video-Seminars

- Recordings of on-site seminars and webinars
- Currently 12 courses
- Date: Anytime

DYNAmore-Express Webinar Series

- Free webinars on various topics
- Duration: approx. 1 hour
- Dates: regularly
- Fee: free of charge
- Recordings of past webinars can be found on our DYNAmore YouTube channel

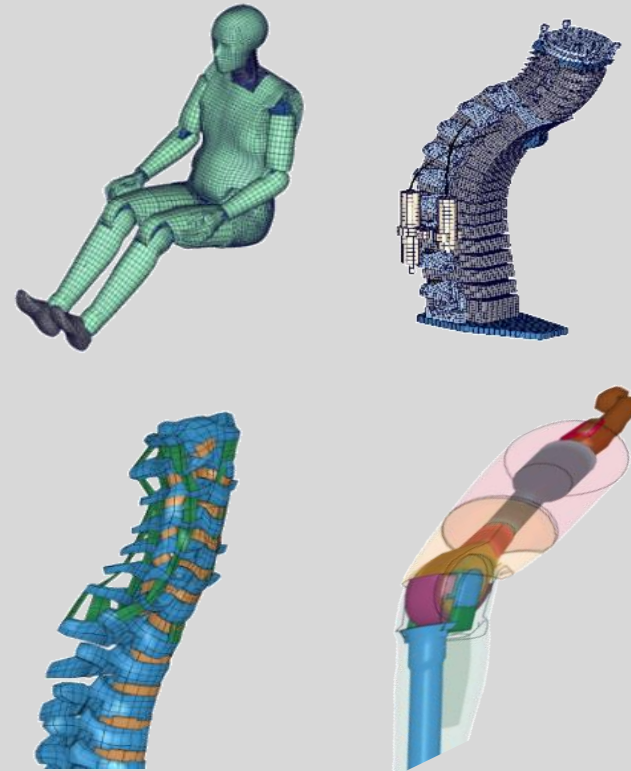
Video-seminar and webinar booking

Find all webinars on video seminars on www.dynamore.de/en/seminars

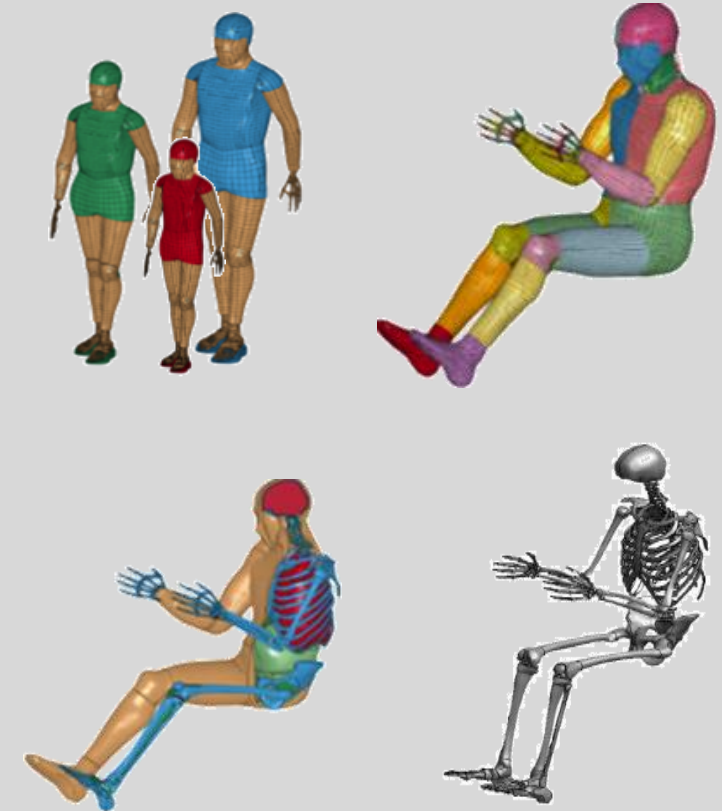
SID Models



BioRID Models



Human Models

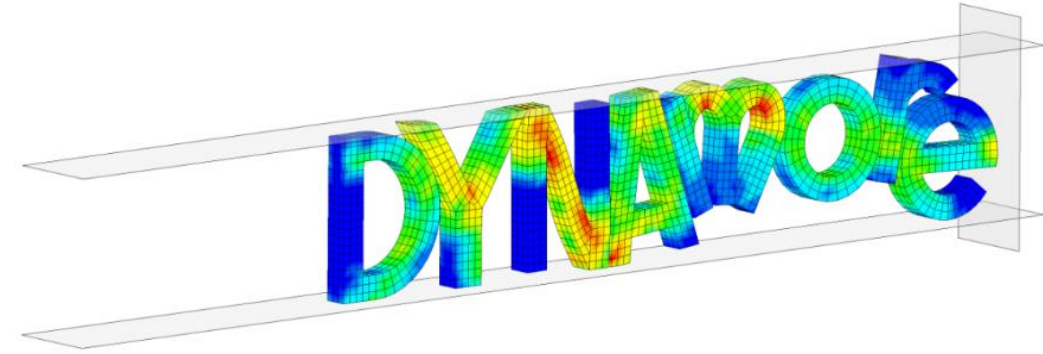


■ Software development

- 6 developers for LS-DYNA
- 3 developers for LS-OPT
- 1 developer for LS-PrePost

■ IT Services

- Process integration of LS-DYNA
- CAx Data Management
 - Simulation Data Management (SDM)
 - Load case Composer (LoCo)
- Process monitoring (Status.E)
- Report generation (CAViT)



Since 01.09.2014: SCALE GmbH

SCALE
IT-Solutions for CAE

■ Testing

- Specimen and components
- Collection, processing and conditioning of samples
- Static and dynamic at different rates
- Tensile, compression, puncture and bending
- Optical 3D strain measurement

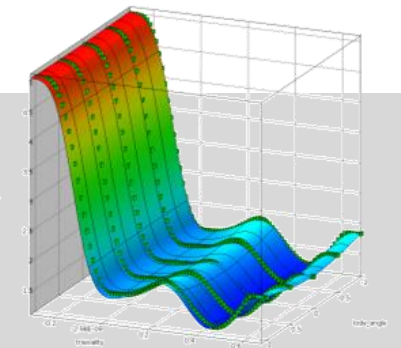
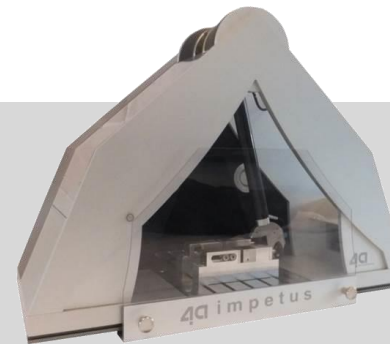


■ Material-parameter identification

- Viscoelastic and visco-plastic materials
- Isotropic and anisotropic properties
- Tension-compression asymmetry
- Damage models and damage evolution, e. g.
 - GISSMO (General Incremental Stress State dependent damage Model)
 - DIEM (Damage Initiation and Evolution Model)

Benefits

- Testing and material-model calibration in house
- LS-DYNA developers are very next to us



- **Participation in national research projects**

- AIAX (AI application)
- AIMM (AI, material modelling)
- ARENA2036 (composites)
- 3DProCar (composites)
- Digibody (manufacturing process)
- SafeLIB (lithium-ion batteries)
- ...



SafeLIB

ARENA2036



AIAX



AIMM

ARTIFICIAL INTELLIGENCE FOR MATERIAL MODELS



DIGIBODY



DYNAmore

Customers (selection)



DYNAmore

Customers (selection) for Dummy Models



www.dynamore.de

- All software products
- Actual release notes
- Download area for software & manuals
- FEM models
- Training schedule



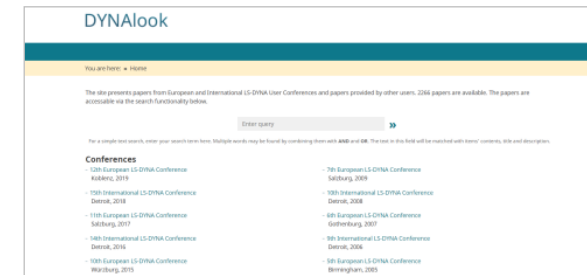
www.dynaexamples.com

- Seminar notes
- More than 120 examples presented
- Download area



www.dynalook.com

- Database for published papers on LS-DYNA
- User-based knowledge database
- Simple examples



www.dynasupport.com

- Any support information regarding LS-DYNA
- FAQ



Upcoming Events

What is next

Upcoming Event

LS-DYNA conference



16th LS-DYNA Forum in Germany

- 11-13 October 2022
- Hybrid conference (on-site and online)
- Welcome Kongresshotel Bamberg
- ~ 100 presentations
- ~ 250 attendees onsite
- Hard- and Software Exhibition

www.dynamore.de/en/forum2022



About Today

Miscellaneous Information

About today

Agenda



Time	Title	Presenter
13:30 – 13:45	Welcome and Introdution	Maik Schenke (DYNAmore GmbH)
13:45 -- 14:15	Model parameterization in ANSA	Dirk Dreißig (Lasso Ingenieurgesellschaft mbH)
14:15 – 14:45	Setup of an optimization with LS-OPT, ANSA and META	Dirk Dreißig (Lasso Ingenieurgesellschaft mbH)
14:45 – 15:15	Parameterization of a crash management system with ANSA morphing and optimization with LS-OPT	Martin Feuerstein (Constellium Singen GmbH)
15:15 -- 15:45	Coffe break	
15:45 – 16:30	Overview and New Features in LS-OPT and LS-TaSC	Maik Schenke (DYNAmore GmbH)
16:30 – 16:45	Summary and farewell	Maik Schenke (DYNAmore GmbH)

Lets get started

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